STEREO POWER AMPLIFIER
STEREO-LEISTUNGSVERSTÄRKER
AMPLIFICATEUR DE PUISSANCE STÉRÉO
STEREO EINDVERSTERKER

Model
Modell
Modèle
Model

HMA-7500MKII

INSTRUCTION MANUAL BEDIENUNGSANLEITUNG MODE D'EMPLOI GEBRUIKSAANWIJZING

HITACHI

See pages 29 through 33 and 36 for figures of this unit.

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SAFEGUARD

Electrical energy can perform many useful functions. This unit has been engineered and manufactured to assure your personal safety. Improper use can result in potential electrical shock or fire hazards. In order not to defeat the safeguards, observe the following instructions for its installation, use and servicing.

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

IMPORTANT FOR U.K.:

The wires in this mains lead are coloured in accordance with the following code:

Blue: NEUTRAL
Brown: LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured BLACK.

The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.

INSTALLATION

Please bear in mind the following points when installing the HMA-7500MKII.

1. Install it in a place free from direct sunlight and heat from a stove, etc.
2. Since the HMA-7500MKII incorporates a large power output amplifier, choose a well ventilated, moisture-free place.
3. Install the amplifier on a stable and vibration-free surface.

1. Installation on an ordinary shelf

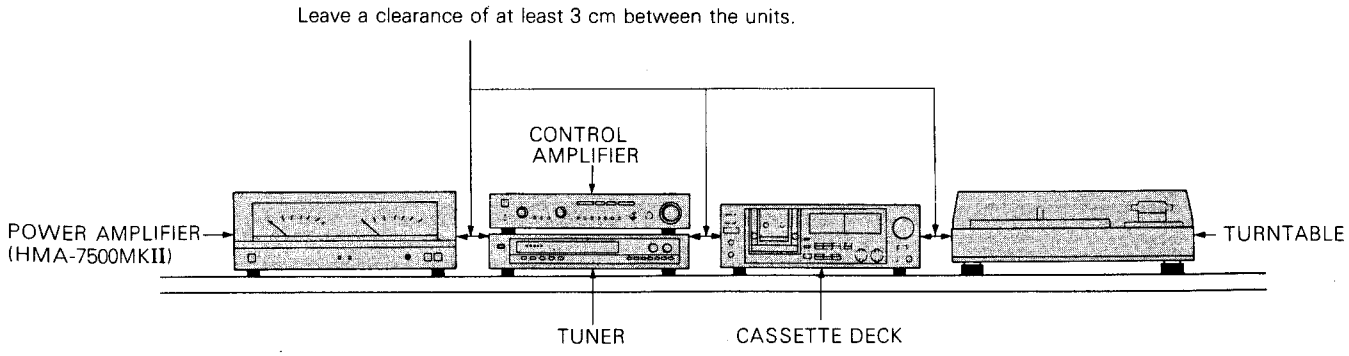

Fig. 1 (Correct)

Notes:

1. This unit is a high-output power amplifier and so it generates a great deal of heat when operating. Therefore, choose a well ventilated location for installation. Install the units as illustrated in Fig. 1. When using the power amplifier at high-output power levels, the top of the unit and the heat-sink fins will heat up and so it is not advisable to touch these parts.

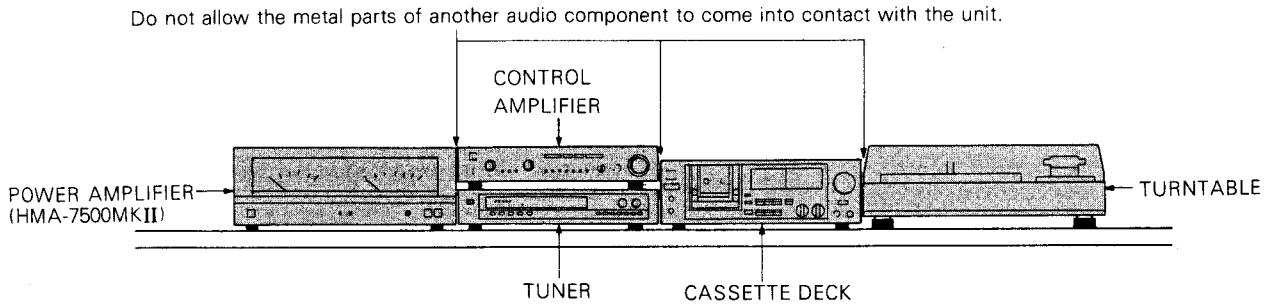
Do not allow the metal parts of another audio component to come into contact with the unit.
CONTROL AMPLIFIER
POWER AMPLIFIER (HMA-7500MKII)
TURNTABLE
TUNER
CASSETTE DECK

Fig. 2 (Incorrect)

2. Hum noise is sometimes generated if the metal parts (like case, front panel, etc.) of another audio component or metal rack come into contact with the unit, as shown in Fig. 2.
3. When a tape deck is placed close to this unit or it is placed on this unit, inductive hum may be generated. If this happens, change the place of each unit or keep the deck away from the unit.

2. Rack installation

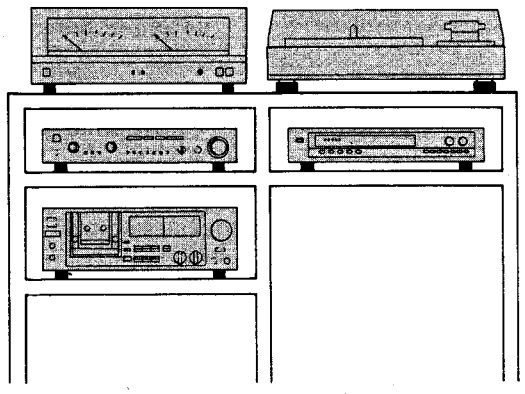

Fig. 3 (Installation in horizontal rack)

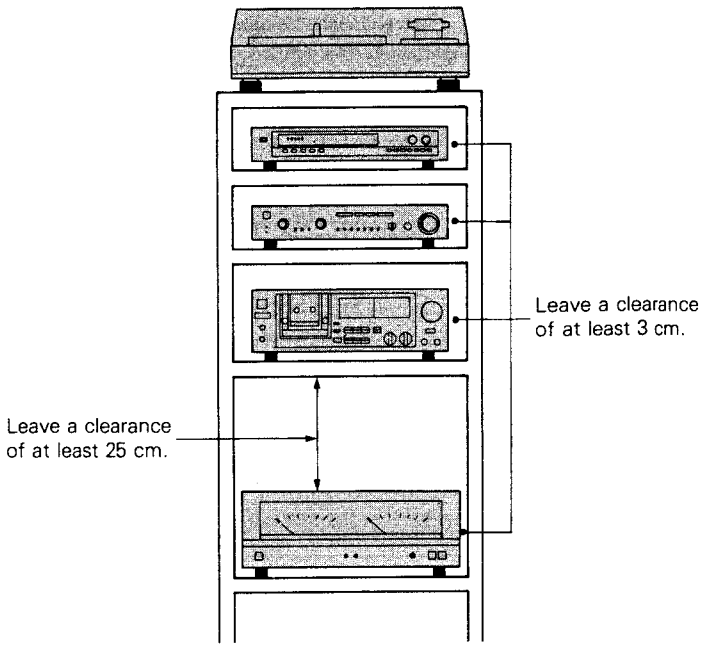

Fig. 4 (Installation in vertical rack)

Notes:

If your audio rack is enclosed and poorly ventilated, do not install the HMA-7500MKII inside the rack but place it on top, as illustrated in Fig. 3, where there is good ventilation.

FEATURES

HITACHI has developed complementary power MOS FETs as audio power amplification elements with superlative characteristics. These power MOS FETs are characterized by excellent complementary characteristics between the N-channel and P-channel and also by a simple circuit configuration of three stages inclusive of the power amplification stage. They are designed to excel in the reproduction of the highest sound quality by yielding a wide bandwidth and a low distortion rate.

1. **Design oriented toward low distortion across wide band for the best in sound quality**
   The power MOS FET features a high input impedance and it is a voltage drive device. These two merits provide a high power gain and a simply designed circuit configuration. This is why there is minimal noise or phase drift which has an adverse affect on the sound quality, and also why there is no deterioration in the distortion factor. In addition, the frequency response is excellent, the switching speed is fast, stable operation is ensured even in the high frequencies and notch distortion is dramatically reduced. The design makes for a low distortion factor across a wide band with a continuous power output of 15 watts per channel, min., at 8 ohms (20 Hz – 20 kHz) with no more than 0.005% total harmonic distortion.
2. **Super linear circuit for enhancing transmission performance of power MOS FET**
   Switching distortion, which is noted as having an extremely adverse effect on the sound quality, is greatly suppressed by power MOS FETs. This distortion is inherent to class B amplifiers because of the difference in the non-linear portions of the rise characteristics of the devices used, and thus it cannot be ignored. HITACHI, in an effort to do full justice to the performance of its power MOS FET output device, has developed a new bias circuit which plays an instrumental role in improving sound quality.
3. **Dual servo circuit**
   HITACHI employs a servo circuit, which is mounted separately from the negative feedback loop of the signal, to detect only the distortion component and DC component created at the output terminals, and by applying negative feedback, the DC components and distortion at the output terminals are reduced to re-create a sound quality with superlative resolution.
4. **BTL switch allowing use as high power output monophonic amplifier**
   Even while this model is designed as a stereo amplifier, it can also be used as a monophonic amplifier delivering a high power output of 150 watts. Selection is performed with a BTL switch on the front panel, and by changing the connections of the speakers' terminals. This expands its range of use and allows a high-quality sound to be reproduced. The power meters are equipped with a direct readout scale for when the model is used as a monophonic amplifier (BTL).
5. **Independent left, right power supplies**
   By installing independent left and right power transformers, the transient crosstalk via the power supplies is eliminated. The smoothing capacitors feature a low impedance in order to produce a high sound quality. By using four 5,600 μF capacitors each at the left and right making a total capacitance of 44,800 μF, the sound is made clear and stable across a wide frequency band.
6. **Large-sized power (peak) meters**
   The amplifier comes with large-sized power meters which can be used to check the output level of the signals and the left-right channel balance. They employ a logarithmic compression circuit and display the detected peak values in RMS form. This means that they can track pulse-like signals and offer readout of instantaneous values. On the front panel is a meter range selector which can be aligned with the impedance (4/8 ohms) of the connected speaker system for direct readout of power output under 4-ohm or 8-ohm impedance conditions.
7. **Output terminals with direct output system**
   When a high current flows to a switch or other part, distortion caused by the non-linearity of the contacts is generated. For this reason, the speakers are selected by a power relay, which also serves as a highly reliable protection circuit, and this is installed near the output terminals so that output currents will not flow to the SPEAKERS switch. The connections from the output line of the power amplifier to the speaker terminals are the shortest possible so that the output line, through which high currents flow, is not run around the front or the back of the amplifier. As a result, the adverse effects on the input stage and the crosstalk are decreased, leaving a sound which is extremely clear.
8. **High-reliability Protection Circuitry**
   In order to protect the power MOS FET, a current limiter circuit which relies on the detection of the area of safe operation and DC voltage detection circuit have been installed. This circuitry features high reliability which enables it to cope with accidents.
9. **Internal layout designed for best sound quality and employment of high-performance parts**
   Use of the power MOS FETs and super linear circuit results in improving the wideband and low distortion characteristics, which are part of the basic performance of an amplifier. Furthermore, in order to reproduce the sound faithfully, a direct power supply system is adopted where special small-signal and large-signal power supplies are separated and installed independently on the circuit boards. This has greatly reduced the impedance. In addition, it is possible to prevent interaction between the amplifier units to give an excellent sound image ambience. Each of the parts making up the amplifier is inspected for its sound quality capabilities to guarantee only the best performance and reliability so that the final sound quality comes across as really dynamic.

CONTROLS AND SWITCHES

① **POWER switch**
When this switch is set to ON (▭), power is supplied to the amplifier and one of the indicators ⑦ to ⑨ which has been selected by the METER RANGE selector ② and the BTL switch ③ will wink. The HMA-7500MKII is provided with a muting circuit and about seven seconds after the POWER switch has been set to ON (▭), the indicator will stop winking and light. The amplifier is now fully operational.

② **METER RANGE selector**
This switch is depressed (▭) if the speaker impedance is 4 ohms and released (□) if it is 8 ohms. This makes it possible to vary the deflection of the meter pointer and select the speaker output display corresponding to the impedance of the speakers. The 4⑦ or 8 ohm⑧ indicator lights. The middle level of the meter scale shows the output indication.

③ **BTL switch**
When this switch is set to ON (▭), the 4 ohm⑦ or 8 ohm⑧ indicator goes off, the BTL indicator⑨ lights and the model functions as a monophonic amplifier. For stereo reproduction, two HMA-7500MKII models are required. (Refer to connections figure on page 33.)

④ **PHONES jack**
Connect the plug on the stereo headphones to this jack. For private listening with headphones, set both the A and B SPEAKERS switches ⑤ to OFF (□). If the BTL switch ③is set to ON (▭), the signal fed into the left channel input terminal is reproduced monophonically.

⑤ **SPEAKERS switches**
OFF (□): Sound is not heard through the speakers.
ON (▭): Sound is heard through the speakers.
NOTES:
1. When switches A and B are both ON (▭), connect speakers with an impedance of 8 to 16 ohms at both the A and B terminals.
2. When the HMA-7500MKII is being used with a BTL connection, connect speakers with an impedance of 8 to 16 ohms to the BTL output terminals.
3. When the BTL switch ③ is set to ON (▭), the A speakers terminals are set to off regardless of the setting of the A SPEAKERS switch, and no signals are fed out.

⑥ **POWER meters**
These indicate the output level of the power amplifier. The actual output display on the power meter scales depends on the position of the METER RANGE selector ② and BTL switch③, as shown in the table below. The RMS value of the detected peaks is displayed.

	METER RANGE selector②	BTL switch③	Scale readout
Output display for 8-ohm speakers used normally.	8 ohms (□)	OFF (□)	Output is indicated at the middle of scale.
Output display for 4-ohm speakers used normally.	4 ohms (▭)	OFF (□)	Output is indicated at the middle of scale.
Output display for 8-ohm speakers with amplifier used as a BTL-connected monophonic amplifier.	Any position	ON (▭)	BTL output is indicated at top of scale (both meter pointers move but it is necessary only to read out the value on one meter).

If the speakers have an impedance of 6 ohms, set the BTL switch③ to OFF (□) and the METER RANGE selector ② to 8 ohms (□). Read off the output indicated at the middle of the scale for 8-ohm speakers and then multiply that value by 1.3. For instance, if the pointers deflect to around 50 watts, the actual output level will be about 65 watts.

⑦ **4 ohm METER RANGE indicator (green)**
This lights when the METER RANGE selector② has been set to the 4 ohm (▭) position. It winks in this state when the muting circuit has been activated immediately after the POWER switch①has been set to ON (▭) and when the protection circuit has been activated.
When the BTL switch③has been set to ON (▭), this indicator goes off regardless of the setting of the METER RANGE selector②, and the BTL indicator⑨ lights.

⑧ **8 ohm METER RANGE indicator (green)**
This lights when the METER RANGE selector② has been set to the 8 ohm (□) position. It winks in this state when the muting circuit has been activated immediately after the POWER①switch has been set to ON (▭) and when the protection circuit has been activated.
When the BTL switch③ has been set to ON (▭), this indicator goes off regardless of the setting of the METER RANGE selector②, and the BTL indicator ⑨ lights.

⑨ **BTL indicator (red)**
When the BTL switch ③ is set to ON (▭), the METER RANGE indicator ⑦ or ⑧ goes off and the BTL indicator⑨ comes on regardless of the setting of the METER RANGE selector ②. The indicator winks when the muting circuit has been activated immediately after the POWER switch①has been set to ON (▭)and when the protection circuit has been activated.

English

Operation procedure for power switches

The HMA-7500MKII incorporates a muting circuit to safeguard against shock noise. Nevertheless, you can still damage your speakers if you operate the amplifiers carelessly, so be sure to follow the procedure outlined below.

Switching the power on

Control amplifier's volume control	Minimum
Power amplifier's speaker switch (A, B)	OFF
Control amplifier's power switch	ON
Power amplifier's power switch	ON
Power amplifier's speaker switch	ON

Switching the power off

Control amplifier's volume control	Minimum
Power amplifier's speaker switch (A, B)	OFF
Power amplifier's power switch	OFF
Control amplifier's power switch	OFF

HOW TO USE THE BTL CONNECTION

"BTL" stands for "balanced transformer less". It refers to a system where a single input signal is amplified in reverse phase through each channel of a stereo power amplifier and where the stereo power amplifier can be used as a high-power monophonic amplifier by connecting a single speaker to the output terminal of one channel. This means that when using the HMA-7500MKII with a BTL connection, two units are required in order to achieve stereo reproduction. (Refer to the connections figure on page 33.)

(1) Connect a single output of the control amplifier to the rear panel's left channel input only when using the BTL connection to make the unit operate as a monophonic amplifier.

(2) The signals are fed out between the left and right channel output (+) terminals at the B speaker terminal position. Therefore, connect the speaker's (+) terminal to the left-channel (+) speaker terminal and the speaker's (−) terminal to the right channel (+) speaker terminal. Make sure that the B SPEAKERS switch is set to ON (⊓), and that the impedance of the speakers being used is at least 8 ohms.

(3) Set the BTL switch ③ to ON (⊓). In this case, the A speaker terminals are switched off, regardless of the position of the A SPEAKERS switch.

(4) When the BTL switch ③ is set to ON (⊓) the meter display indicates the power output as an 8-ohm BTL-connected monophonic amplifier regardless of the setting of the METER RANGE selection ②. Both the left and right channel meter pointers deflect but it is necessary to read out the value on one only. Read off the BTL output indicated at the top of the meter scale.

(5) When the BTL switch ③ is set to ON (⊓), the input signal connected to the left channel input terminal (monophonic input terminal for BTL connection) is fed out to the left and right channels of phones jack so that the monophonic signal can be monitored with the headphones. Because of the BTL connection, the headphones' left and right channel (−) terminals are made common and so stereo reproduction is not possible.

Caution:

When using the another amplifier or speakers selectors box with BTL connection, the speakers' (+) and (−) terminals connected to the BTL output terminals have a "hot" output with respect to ground potential. This means that during selection, the (+) and (−) output terminals must not be grounded even temporarily. If they are grounded, the internal output terminals are subjected to an overload and the protection circuit may be activated. Since the (−) terminals is also "hot", the signal is led back at a high-range frequency just as with the (+) terminal in cases where it approaches the input terminals at the another amplifier or speakers selectors box section. This may in turn cause oscillation.

For this reason, do not use another amplifier or speakers selectors box with the BTL connection.

When the model is being used as a BTL-connected monophonic amplifier, the maximum output is more than 150 watts and so take sufficient care that the speaker's maximum power handling capacity is not exceeded.

PROTECTION CIRCUITS

HITACHI has provided the following protection circuits for increased safety.

(1) Protection of the power MOS FET

In order to protect the power MOS FET, the area of safe operation detection circuit causes the relay to be actuated, the METER RANGE indicator ⑦ or ⑧ or the BTL indicator ⑨ winks. The sound is no longer heard in cases when the speaker terminals are shorted, or when the speakers are handling high inputs with a low load impedance (such as when 4-ohm speakers are connected to both speaker terminals A and B and both SPEAKERS switches A and B are at ON or when 4-ohm speakers are connected to the BTL output terminal and the BTL switch is at ON). If this happens, set the POWER switch to OFF, check whether the speaker connecting cords have been shorted, whether the speaker leads have been connected properly, and whether the impedance is too low. Remedy the fault, and

wait at least 10 seconds after switching the POWER switch to OFF before switching it on again. (If this switch is set to ON in less than 10 seconds, the amplifier may not operate). If the relay is actuated again after the fault has been traced to a short, and after it has been remedied, it means that there is a failure inside the amplifier. Get in touch with your nearest audio dealer or service station for repairs.

(2) Protection of the speakers

The speakers are damaged when DC voltage is generated at the speaker terminals. This is why the HMA-7500MKII has a DC voltage detection circuit which actuates the relays and shuts off the speaker circuits, thereby protecting the speakers.
However, if DC voltage is generated, be sure to switch on the power after checking (1). If it does not operate normally, the fault may lie with the amplifier so contact your nearest audio dealer or service station for repairs.

WHAT TO DO IF?

A variety of problems may result from the mishandling of the power amplifier.
When a problem occurs, check the table below which describes possible problems occurring in your power amplifier. Since the power amplifier is completely checked and adjusted before shipping, there are no user serviceable and adjustable parts inside. But if the power amplifier is not operating correctly and you are unable to restore normal operation by following the detailed procedure in the table below, do not remove the cover of the set or attempt any further adjustments. Unplug the set and contact your dealer or nearest HITACHI service station.

	SYMPTOM	DIAGNOSIS	REMEDY
NORMAL PLAYING	Indicator does not come on and the sound is not heard although the power switch is set to ON.	1. Line plug is loose. 2. Fuse blown.	1. Plug the AC plug into AC outlet. 2. Replace the fuse.
	Indicator comes on but the sound is not heard.	1. The speaker cords are loose. 2. The tape monitor switch is set to ON. (CONTROL AMPLIFIER)	1. Connect the speaker cords to the speaker terminals. 2. Set the tape monitor switch to OFF. (CONTROL AMPLIFIER)
	Only one channel works.	1. The speaker cord of one channel is loose. 2. BALANCE control is turned fully clockwise or counterclockwise. (CONTROL AMPLIFIER)	1. Connect the speaker cord to the speaker terminals. 2. Set the BALANCE control to the midway position. (CONTROL AMPLIFIER)
	Sound separation is not distinct and bass is poor.	1. Polarities of the speaker connections are not aligned properly.	1. Correct the polarities on either the speakers and the amplifier.
	The speaker protection circuitry may at times be actuated and the sound will be cut off from the speakers.	1. The output level is too high. (always over 100 W).	1. Turn the volume down to the proper level.
PLAYING RECORDS	The sound of both channels or one channel is not heard.	1. Faulty connection of the output cords of the turntable.	1. Connect the output cords of the turntable to the control amplifier securely.
	Hum and buzz	1. Faulty connection of the output cords of turntable. 2. Pin jack connection is loose. 3. Ground wire is loose. 4. There is a line cord near the phono cords of turntable.	1. Connect the output cords of the turntable to the control amplifier securely. 2. Secure the pin-plug to the pin-jack. 3. Connect the ground wire of the turntable to GND terminals of the control amplifier. 4. Separate the line cord from the phono cords of the turntable.
	Increasing the volume causes howl.	1. Sound of the speakers is making the turntable vibrate.	1. Move either the speakers or turntable. Do not increase the BASS sound level excessively.
	Output tone is mixed with noise and treble is not clear.	1. Stylus is worn out. 2. Record is worn out. 3. Dust is adhering to stylus. 4. Stylus is improperly mounted. 5. Tracking force is not correct. 6. The TREBLE sound is too high.	1. Correct the conditions described in 1-6.
LISTENING TO BROADCASTS	Continuous noise in AM.	1. Static. 2. Noise caused by other electric appliances.	1 , 2. Set up a good and high outdoor antenna and ground it perfectly.
	Only when tuning AM broadcasts, hum noise is heard.	1. Generally caused by high voltage lines or other electric appliances.	1. By reversing the polarity of AC plug, the hum is reduced. But it is very difficult to remove this noise completely.
	Continuous or intermittent noise.	1. Ignition noise from automobile engines.	1. Set up an outdoor FM antenna instead of using attached FM feeder antenna.
	The sound of FM program contains noise like zzz. More noise is included in FM stereo reception than FM mono.	1. The signal input of antenna terminals is too weak to receive FM stereo broadcasts.	1. Set up an outdoor FM antenna.

Deutsch

INHALT

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SICHERHEITSANLEITUNG

Elektrische Energie kann viele nützliche Funktionen verrichten. Dieses Gerät ist so konstruiert und hergestellt, daß Ihre persönliche Sicherheit gewährleistet ist. Unsachgemäße Behandlung kann möglicherweise elektrische Schläge oder Feuergefahr verursachen. Um die Sicherheitsanleitung nicht zu verletzen, beachten Sie bitte die folgenden Anweisungen zur Aufstellung, Bedienung und Wartung des Gerätes.

WARNUNG: SETZEN SIE DIESES GERÄT ZUR VERHÜTUNG VON FEUER- ODER STROMSCHLAGGEFAHR WEDER REGEN NOCH FEUCHTIGKEIT AUS.

AUFSTELLUNG

Folgende Punkte beim Aufstellen des HMA-7500MK II beachten:
1. Frei von direkter Sonneneinstrahlung und nicht in der Nähe von Heizgeräten aufstellen.
2. Da der HMA-7500MK II einen eingebauten Hochleistungs-Endverstärker enthält, soll die Luft gut zirkulieren können und muß möglichst frei von Feuchtigkeit sein.
3. Den Verstärker auf eine stabile und erschütterungsfreie Unterlage stellen.

1. Aufstellen auf einem gewöhnlichen Regal

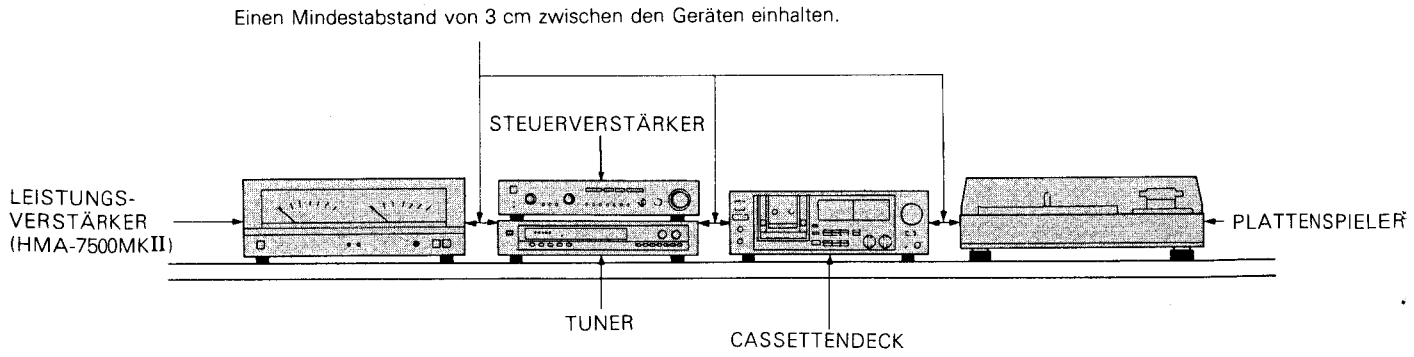


Abb. 1 (Richtig)

Zur Beachtung:
1. Dieses Gerät ist ein Leistungsverstärker mit hoher Ausgangsleistung und erzeugt daher beim Betrieb eine beträchtliche Wärme. Stellen Sie deshalb das Gerät an einem gut belüfteten Ort auf. Stellen Sie die Geräte so auf, wie in Abbildung 1 gezeigt ist. Beim Betrieb des Leistungsverstärkers mit hoher Dauerausgangsleistung erwärmen sich die obere Abdeckplatte und die Kühlrippen.
   Es ist daher ratsam, diese Teile nicht zu berühren.

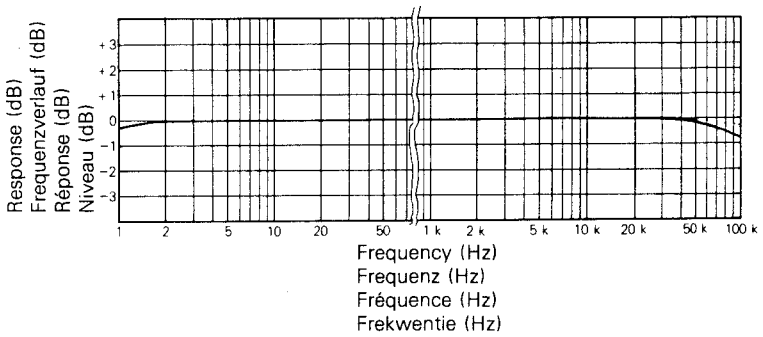
CHARACTERISTICS/EIGENSCHAFTEN/CARACTÉRISTIQUES/ KARAKTERISTIEKEN

■ **Frequency Characteristics**
Input: INPUT terminal
Output: 8 ohm load
0 dB: 0.775 V
Measuring Equipment
Audio Osc.: MODEL 4404A
AC Volt Meter: MODEL 3403C

■ **Frequenzverhalten**
Eingang: Eingangsklemme (INPUT)
Ausgang: 8 Ohm Belastung
0 dB: 0,775 V
Meßausstattung
Tonfrequenzgenerator, Modell 4404A
Wechselspannungsmesser, Modell 3403C

■ **Caractéristiques de fréquence**
Entrée: Borne d'entrée (INPUT)
Sortie: Charge de 8 ohms
0 dB: 0,775 V
Equipement de mesure
Osc. audio: Modèle 4404A
Voltmètre CA: Modèle 3403C

■ **Frekwentie karakteristiek**
Ingang: INPUT aansluiting
Uitgang: 8 Ohm belasting
0 dB: 0,775 V
Meetapparatuur
Audio Osc.: MODEL 4404A
AC spanningsmeter: MODEL 3403C

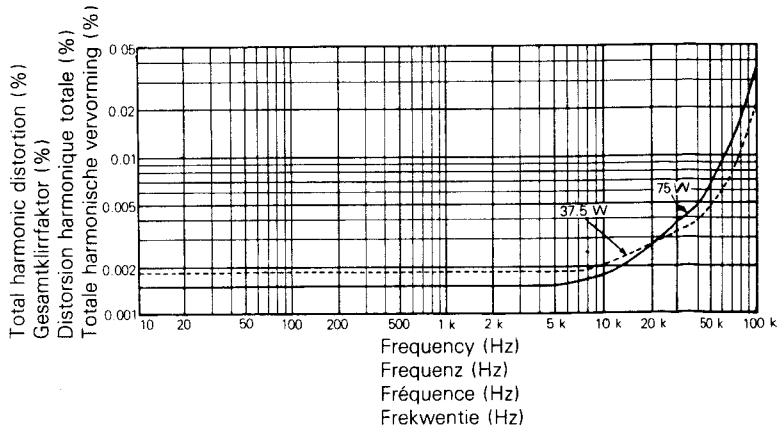


■ **Frequency Vs. Total harmonic distortion characteristics**
Input: INPUT terminal
Output: 8 ohm load both channels driven
Measuring Equipment
Audio Osc.: MODEL 4494A
Distortion Meter: MODEL 4333A
AC Volt Meter: MODEL 3400A

■ **Zusammenhang zwischen Frequenz und Gesamtklirrfaktor**
Eingang: Eingangsklemme (INPUT)
Ausgang: 8 Ohm Belastung, beide Kanäle ausgesteuert
Meßausstattung
Tonfrequenzgenerator, Modell 4494A
Klirrfaktormesser, Modell 4333A
Wechselspannungsmesser, Modell 3400A

■ **Caractéristiques de sortie de puissance contre distorsion harmonique totale**
Entrée: Borne d'entrée (INPUT)
Sortie: Charge de 8 ohms, deux canaux entraînés
Equipement de mesure
Osc. Audio: Modèle 4494A
Compteur de distorsion: Modèle 4333A
Voltmètre CA: Modèle 3400A

■ **Frekwentie vs. totale harmonische vervorming karakteristiek**
Ingang: INPUT aansluiting
Uitgang: 8 Ohm belasting
Beide kanalen uitgestuurd
Meetapparatuur
Audio Osc.: MODEL 4494A
Vervormingsmeter: MODEL 4333A
AC spanningsmeter: MODEL 3400A

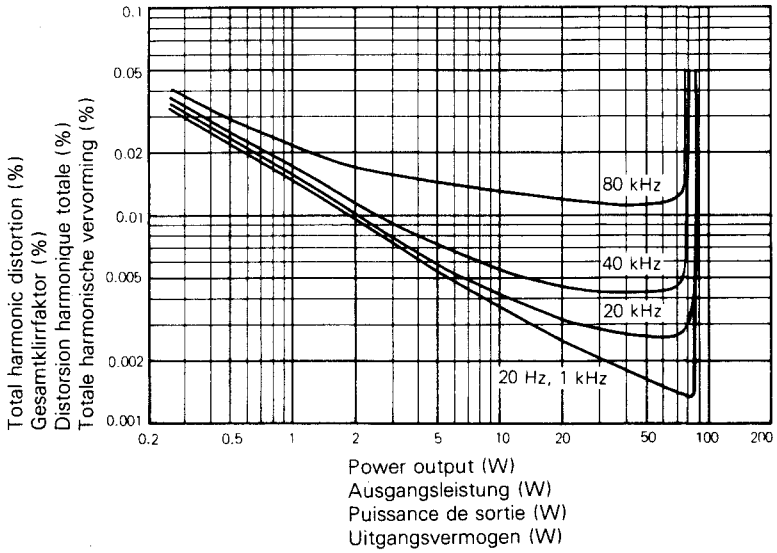


■ **Power output Vs. Total harmonic distortion characteristics**
Input: INPUT terminal
Output: 8 ohm load both channels driven
Measuring Equipment
Audio Osc.: MODEL 4494A
Distortion Meter: MODEL 4333A
AC Volt Meter: MODEL 3400A

■ **Zusammenhang zwischen Ausgangsleistung und Gesamtklirrfaktor**
Eingang: Eingangsklemme (INPUT)
Ausgang: 8 Ohm Belastung, beide Kanäle ausgesteuert
Meßausstattung
Tonfrequenzgenerator, Modell 4494A
Klirrfaktormesser, Modell 4333A
Wechselspannungsmesser, Modell 3400A

■ **Caractéristiques de sortie de puissance contre distorsion harmonique totale**
Entrée: Borne d'entrée (INPUT)
Sortie: Charge de 8 ohms, deux canaux entraînés
Equipement de mesure
Osc. Audio: Modèle 4494A
Compteur de distorsion: Modèle 4333A
Voltmètre CA: Modèle 3400A

■ **Uitgangsvermogen vs. totale harmonische vervorming karakteristiek**
Ingang: INPUT aansluiting
Uitgang: 8 Ohm belasting, beide kanalen uitgestuurd
Meetapparatuur
Audio Osc.: MODEL 4494A
Vervormingsmeter: MODEL 4333A
AC spanningsmeter: MODEL 3400A

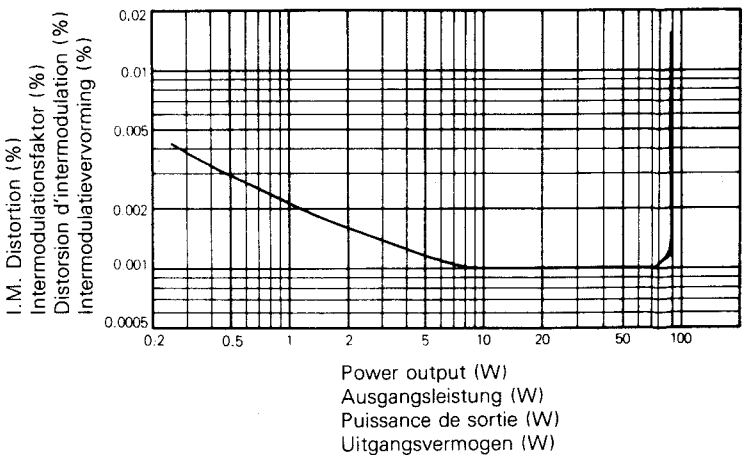


■ **Power output Vs. I.M. Distortion**
Input: INPUT terminal
Output: 8 ohm load both channels driven
60 Hz : 7 kHz = 4 : 1
Measuring Equipment
I.M. Distortion Meter: MODEL 1700B

■ **Zusammenhang zwischen Ausgangsleistung und Intermodulationsfaktor**
Eingang: Eingangsklemme (INPUT)
Ausgang: 8 Ohm Belastung, beide Kanäle ausgesteuert
60 Hz : 7 kHz = 4 : 1
Meßausstattung
Intermodulationsfaktormesser, Modell 1700B

■ **Sortie de puissance contre Distorsion IM**
Entrée: Borne d'entrée (INPUT)
Sortie: Charge de 8 ohms, deux canaux entraînés
60 Hz : 7 kHz = 4 : 1
Equipement de mesure
Compteur de distorsion IM: Modèle 1700B

■ **Uitgangsvermogen vs. intermodulatievervorming**
Ingang: INPUT aansluiting
Uitgang: 8 Ohm belasting
Beide kanalen uitgestuurd
60 Hz : 7 kHz = 4 : 1
Meetapparatuur
Intermodulatievervormingsmeter: MODEL 1700B



KEY TO ILLUSTRATIONS

① POWER switch
② METER RANGE selector
③ BTL switch
④ PHONES jack
⑤ SPEAKERS switches
⑥ POWER meters
⑦ 4 ohm METER RANGE indicator
⑧ 8 ohm METER RANGE indicator
⑨ BTL indicator
⑩ DIRECT COUPLING INPUT terminals
⑪ CONDENSER COUPLING INPUT terminals
⑫ SPEAKERS terminals
⑬ FUSE holder (for multi-voltage set only)
⑭ VOLTAGE SELECTORs (for multi-voltage set only)
⑮ AC outlet (for U.S.A., Canada and multi-voltage sets only)
⑯ Power supply cord

BEZEICHNUNG DER TEILE

① Netzschalter (POWER)
② Anzeigebereichswahlschalter (METER RANGE)
③ BTL-Schalter
④ Kopfhörerbuchse (PHONES)
⑤ Lautsprecherschalter (SPEAKERS)
⑥ Leistungsanzeigen (POWER)
⑦ 4-Ohm-Bereichsanzeigelampe (METER RANGE)
⑧ 8-Ohm-Bereichsanzeigelampe (METER RANGE)
⑨ BTL-Anzeigelampe
⑩ Direktkopplungs-Eingangsklemmen (DIRECT COUPLING INPUT)
⑪ Kondensatorkopplungs-Eingangsklemmen (CONDENSER COUPLING INPUT)
⑫ Lautsprecherklemmen (SPEAKERS)
⑬ Sicherungshalter (FUSE) (nur beim Mehrspannungsgerät)
⑭ Spannungswähler (VOLTAGE SELECTOR) (nur beim Mehrspannungsgerät)
⑮ Netzsteckdose (nur bei Geräten für USA, Kanada und mehrere Spannungen)
⑯ Netzkabel

GUIDE DE FONCTIONNEMENT

① Interrupteur d'alimentation (POWER)
② Sélecteur de gamme de compteur (METER RANGE)
③ Interrupteur BTL
④ Prise d'écouteurs (PHONES)
⑤ Interrupteurs de haut-parleurs (SPEAKERS)
⑥ Compteurs de puissance (POWER)
⑦ Témoin de gamme de compteur (METER RANGE) de 4 ohms
⑧ Témoin de gamme de compteur (METER RANGE) de 8 ohms
⑨ Témoin BTL
⑩ Bornes d'entrée par couplage direct (DIRECT COUPLING INPUT)
⑪ Bornes d'entrée par couplage par condensateur (CONDENSOR COUPLING INPUT)
⑫ Bornes de haut-parleurs (SPEAKERS)
⑬ Porte fusible (FUSE) (pour appareils à multi-tension seulement)
⑭ Sélecteurs de tension (VOLTAGE SELECTOR) (pour appareils à multi-tension seulement)
⑮ Prise CA (pour les appareils pour les U.S.A., le Canada et les appareils à multi-tension seulement)
⑯ Cordon d'alimentation

BENAMING VAN DE BEDIENINGSORGANEN

① Netschakelaar (POWER)
② Meterbereikkeuzeschakelaar (METER RANGE)
③ BTL-schakelaar
④ Hoofdtelefoonaansluiting (PHONES)
⑤ Luidsprekerschakelaar (SPEAKERS)
⑥ Vermogensmeters (POWER)
⑦ 4 Ohm meterbereikindikator (METER RANGE)
⑧ 8 Ohm meterbereikindikator (METER RANGE)
⑨ BTL-indikator
⑩ Direkt gekoppelde ingangsaansluitingen (DIRECT COUPLING INPUT)
⑪ Kondensator gekoppelde ingangsaansluitingen (CONDENSER COUPLING INPUT)
⑫ Luidsprekeraansluitingen (SPEAKERS)
⑬ Houder voor zekering (FUSE) (Bij multi-bedrijfsspanning apparaten)
⑭ Spanningskiezer (VOLTAGE SELECTOR) (Bij multi-bedrijfsspanning apparaten)
⑮ Netuitgang (Bij Verenigde Staten, Canada en multi-bedrijfsspanning apparaten)
⑯ Netsnoer

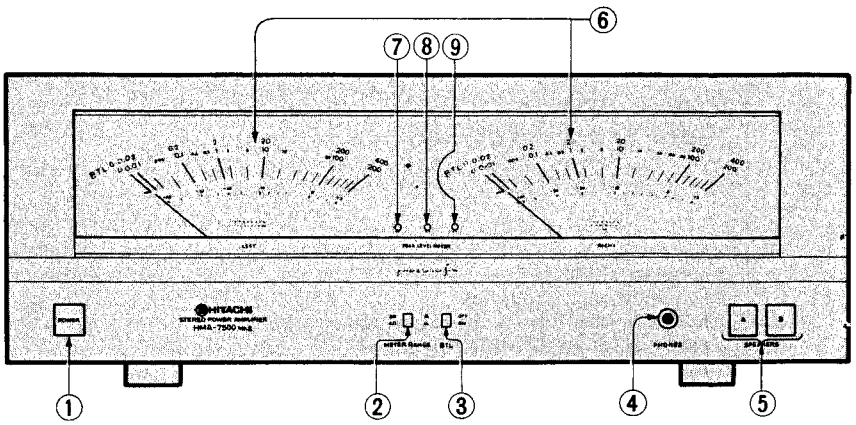
Ordinary connections/Gewöhnliche Anschlüsse/Branchements ordinaires/Normale aansluitingen

Caution
When connecting or disconnecting the input/output cords of the stereo components, set the control amplifier's volume control to the minimum position and switch off the power to all the components.

Vorsicht
Beim Anschließen oder Trennen der Eingangs-/Ausgangskabel der Stereo-Bausteine den Lautstärkeregler des Steuerverstärkers ganz zurückdrehen, und alle Bausteine ausschalten.

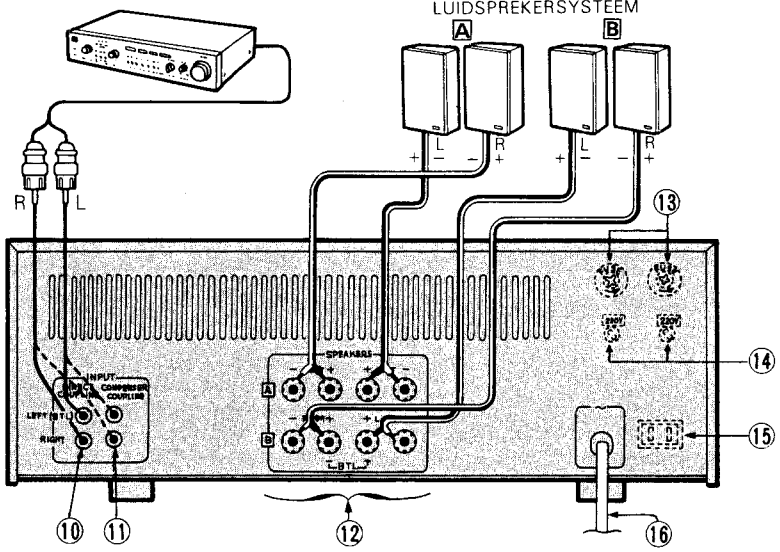
Attention
Lorsque l'on branche ou que l'on débranche les cordons d'entrée et de sortie des composants stéréo, mettre la commande de volume de l'amplificateur de contrôle sur sa position minimale et couper l'alimentation de tous les composants.

Waarschuwing
Schakel alle apparaten uit en zet de volumeregelaar van de stuurversterker in de minimumstand bij het aansluiten of losmaken van de ingangs/uitgangssnoeren.



CONTROL AMPLIFIER
STEUERVERSTÄRKER
AMPLIFICATEUR DE CONTRÔLE
STUURVERSTERKER

LOUDSPEAKER SYSTEM
LAUTSPRECHERGRUPPE
SYSTÈME DE HAUT-PARLEURS
LUIDSPREKERSYSTEEM



Connecting the control amplifier
Connect the INPUT terminals on the model to the OUTPUT terminals on the control amplifier using shielded wires. Before connecting, make sure that the power to the model has been switched off and after connecting, check that all the wires are secure.
DIRECT COUPLING INPUT:
Input terminals normally used.
CONDENSER COUPLING INPUT:
Use these terminals when the DC leakage is high at the output terminals of the control amplifier connected. When these terminals are employed, a 4 Hz 6 dB/oct subsonic filter effect is provided and the DC leakage is cut off.
Note:
Do not connect US pin cords to both the DIRECT COUPLING INPUT and CONDENSER COUPLING INPUT terminals at once from two separate control amplifiers.

Anschließen des Steuerverstärkers
Die Eingangsklemmen dieses Gerätes mit Hilfe von abgeschirmten Drähten mit den Ausgangsklemmen des Steuerverstärkers verbinden. Vor dem Anschließen sicherstellen, daß das Gerät ausgeschaltet ist; nach dem Anschließen nachprüfen, ob alle Drähte fest angeschlossen sind.
Direktkopplungs-Eingangsklemmen (DIRECT COUPLING INPUT):
Diese Eingangsklemmen werden normalerweise verwendet. Kondensatorkopplungs-Eingangsklemmen (CONDENSER COUPLING INPUT):
Diese Klemmen verwenden, wenn die Gleichspannungsableitung an den Ausgangsklemmen des angeschlossenen Steuerverstärkers stark ist. Bei Benutzung dieser Klemmen ergibt sich eine Unterschallfilterwirkung von 4 Hz, 6 dB/Oktave, wobei die Gleichspannungsableitung verhindert wird.
Zur Beachtung:
Keine amerikanischen Steckerkabel von zwei separaten Steuerverstärkern gleichzeitig an die Eingangsklemmen für Direktkopplung und Kondensatorkopplung anschließen.

Branchement à l'amplificateur de contrôle
Relier les bornes d'entrée de l'appareil aux bornes de sortie de l'amplificateur de contrôle à l'aide des fils armés. Avant d'effectuer les branchements, vérifier que l'interrupteur d''alimentation de l'appareil a bien été mis sur OFF et, après les branchements, vérifier que tous les fils sont branchés solidement.
Entrée par couplage direct (DIRECT COUPLING INPUT):
Ce sont les bornes d'entrée qui sont normalement utilisées.
Entrée par couplage par condensateur (CONDENSOR COUPLING INPUT):
Utiliser ces bornes lorsque la fuite CC est élevée aux bornes de sortie de l'amplificateur de contrôle relié. Lorsqu'on utilise ces bornes, un effet de filtre infra-acoustique est donné, et la fuite CC est coupée.
Note:
Ne pas relier de cordons à broches US pour les bornes d'entrée par couplage direct et d'entrée par couplage par condensateur à la fois à partir de deux amplificateurs de contrôle séparés.

Aansluiten van de stuurversterker
Verbind de ingangsaansluitingen van dit model met de uitgangsaansluitingen van de stuurversterker en gebruik hiervoor afgeschermde kabel. Alvorens te beginnen met aansluiten dient u te kontroleren of de apparaten zijn uitgeschakeld. Kontroleer na het aansluiten of de stekkers stevig in de aansluitbussen zitten.
DIRECT COUPLING INPUT:
Gewoonlijk dienen deze ingangsaansluitingen te worden gebruikt.
CONDENSER COUPLING INPUT:
Gebruik deze aansluitingen als de gelijkstroomlekkage bij de uitgangsaansluitingen van de stuurversterker zeer groot is. Bij gebruik van deze aansluitingen zorgt een 4 Hz 6 dB/oktaaf subsonicfilter voor een effektieve blokkering van de gelijkstroom.
Opmerking:
Sluit nooit twee afzonderlijke stuurversterkers d.m.v. amerikaanse pen-stekker snoeren aan op de direkt gekoppelde ingangsaansluitingen en de kondensator gekoppelde ingangsaansluitingen.

Voltage selector
If you want to change over the set voltage from 220 V or 240 V to 120 V, the primary fuses must also be changed. Contact the dealer from whom you purchased this unit or your nearest HITACHI service station. (For multi-voltage set only)

Spannungswähler
Beim Umschalten der eingestellten Spannung von 220 V oder 240 V auf 120 V müssen die Primärsicherungen ausgewechselt werden. In diesem Falle wenden Sie sich bitte an den Fachhändler, von dem Sie dieses Gerät kauften, oder an die nächste HITACHI-Kundendienststelle. (Nur beim Mehrspannungsgerät)

Sélecteur de tension
Si l'on veut modifier la tension réglée à 220 V pour la mettre sur 240 ou 110 V, il faut également changer les fusibles principaux. Prendre contact avec le magasin qui a vendu l'appareil ou avec un magasin HITACHI. (Pour les appareils à multi-tension seulement)

Spanningskiezer
Bij het verstellen van de bedrijfsspanning van 220 V of 240 V naar 120 V dienen ook de hoofdzekeringen te worden vervangen. Raadpleeg daarom uw dealer of HITACHI service-center voor het verstellen van de bedrijfsspanning. (Bij multi-bedrijfsspanning apparaten)

Connection of power cord
Since the HMA-7500MKII is a high power output stereo power amplifier, you may damage the power switch on the control amplifier if you plug it into the AC outlets on the control amplifier. Therefore, avoid this type of connection.

Netzkabelanschluß
Da es sich beim HMA-7500MKII um einen Stereo-Leistungsverstärker mit hoher Ausgangsleistung handelt, kann der Netzschalter des Steuerverstärkers beschädigt werden, wenn dieses Gerät an Steuerverstärker-Netzsteckdosen angeschlossen wird. Diese Art von Anschluß ist daher zu vermeiden.

Branchement du cordon d'alimentation
Etant donné que le HMA-7500MKII est un amplificateur de puissance stéréo à sortie de puissance élevée, on risque d'endommager l'interrupteur d'alimentation de l'amplificateur de contrôle si on le branche dans les fiches CA de l'amplificateur de contrôle. Eviter donc d'effectuer des branchements de ce genre.

Aansluiten van het netsnoer
Aangezien de HMA-7500MKII een groot-vermogen eindversterker is, verdient het aanbeveling het netsnoer van deze eindversterker niet aan te sluiten op de netuitgang van de stuurversterker. Dit om beschadigingen aan de stuurversterker te voorkomen.

AC outlet: The HMA-7500MKII has an UNSWITCHED 100 W MAX outlet. (For U.S.A, Canada and multi-voltage sets only)

Wechselstromausgang: Der HMA-7500MKII besitzt einen ungeschalteten Ausgang von 100 W maximal. (Nur bei Geräten für USA, Kanada und mehrere Spannungen)

Sortie CA: Le HMA-7500MKII possède une sortie CA non commutable de 100 Watts maximum (pour les appareils vendus aux U.S.A. et au Canada et les appareils à multitension seulement).

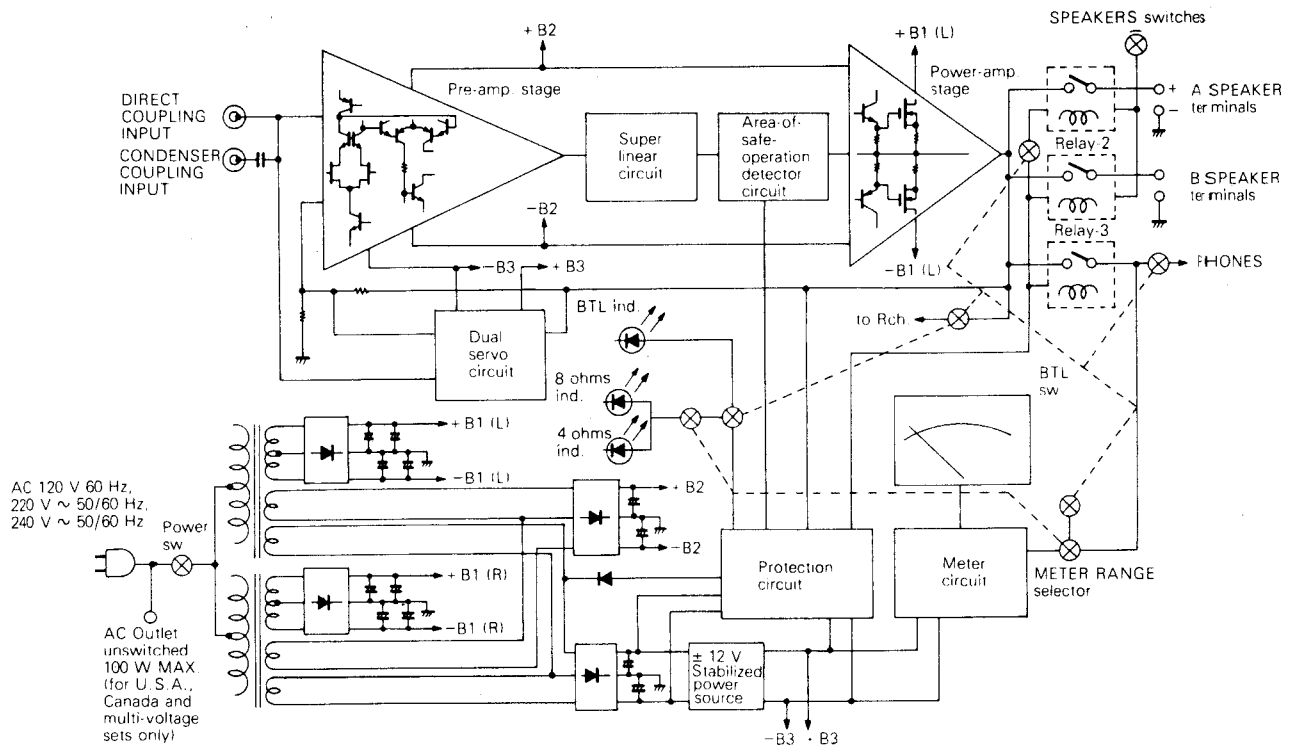
Netuitgang: De HMA-7500MKII is voorzien van een directe netuitgang welke maximaal 100 Watt mag worden belast. (Bij Verenigde Staten, Canada en multi-bedrijfsspanning apparaten)

SPECIFIKATIES

Wijzigingen in ontwerp en specifikaties voorbehouden.

Uitgangsvermogen	80 W/kan. + 80 W/kan. (8 Ohm, 1 kHz, THV 0,005%) 80 W/kan. + 80 W/kan. (4 Ohm, 1 kHz, THV 0,005%) 150 W (8 Ohm, 1 kHz, THV 0,005%, BTL-aansluiting)
Vermogensbandbreedte	5 Hz – 100 kHz (8 Ohm, THV 0,005% 1/2 nominaal)
Frekwentiebereik	0,5 Hz – 100 kHz (+0, −1 dB)
Harmonische vervorming (8 Ohm) **(bij nominaal vermogen)**	Minder dan 0,005%
Intermodulatievervorming (8 Ohm) **(bij nominaal vermogen)**	Minder dan 0,008%
(bij half nominaal vermogen)	Minder dan 0,005%
Ingangsgevoeligheid/impedantie	1 V/47 kOhm
Signaal/ruisverhouding **(IHF, A netwerk, kortgesloten)**	118 dB
Dempingsfaktor (8 Ohm)	100 (1 kHz) 60 (20 Hz – 20 kHz)
Voeding	AC 120 V 60 Hz, ~ 220 V 50/60 Hz, ~ 240 V 50/60 Hz, ~ 120 V/220 V/240 V 50/60 Hz
Opgenomen vermogen	420 W of 540 VA (bij 1/3 nominaal vermogen) 620 W (bij nominaal vermogen)
Afmetingen	435 x 165 x 320 mm (b/h/d)
Gewicht	14 kg

BLOCK DIAGRAM/BLOCK DIAGRAMM/ SCHEMA DE CÂBLAGE/BLOKSCHEMA



This figure shows the circuit configuration for L channel only.

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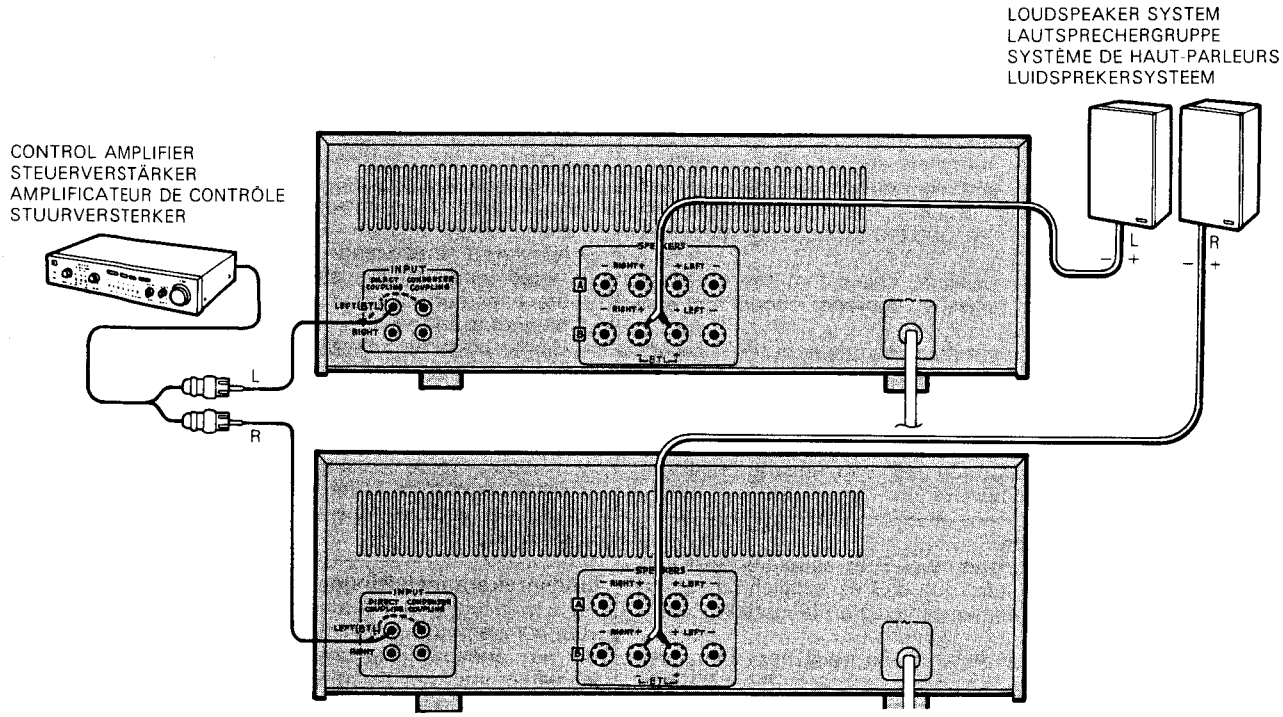
Printed in Japan (H) 4933911

BTL connections (using two HMA-7500MKII models)
NOTE: Use speakers with an impedance of over 8 ohms. Refer to "HOW TO USE THE BTL CONNECTION" on page 6.

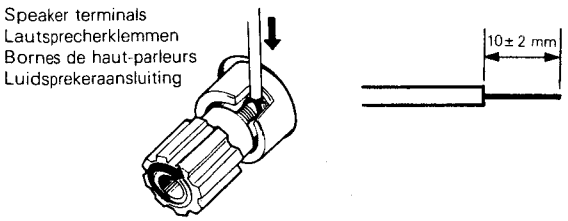
BTL-Anschlüsse (bei Verwendung von zwei Geräten des Modelles HMA-7500MKII)
ZUR BEACHTUNG: Lautsprecher mit einer Impedanz über 8 Ohm verwenden. Siehe "GEBRAUCH DES BTL-ANSCHLUSSES" auf Seite 12. BTL-Anschluß" beachten.

Branchements BTL (en utilisant deux modèles HMA-7500MKII)
NOTE: Utiliser des haut-parleurs d'une impédance de plus de 8 ohms. Se reporter à "COMMENT UTILISER LE BRANCHEMENTS BTL" de la page 19.

BTL-aansluitingen (gebruik twee HMA-7500MKII modellen)
OPMERKING: Gebruik luidsprekers met een impedantie van 8 Ohm of meer. Zie "GEBRUIK VAN DE BTL-AANSLUITING" op blad.26.



Connections to speaker terminals
1. Loosen the knob by rotating it counterclockwise (↺).
2. Insert the cord so that it is wound round as shown in the figure. Make the exposed wire of the cord 10 ± 2 mm.
3. Tighten the knob by rotating it clockwise (↻).
4. Check that the cord is secured firmly.



Anschlüsse an die Lautsprecherklemmen
1. Knopf durch Drehen im Gegenuhrzeigersinn (↺) lösen.
2. Das Kabel so hineinschieben, daß es wie in der Abbildung gezeigt herumgewickelt ist. Den freigelegten Draht des Kabels 10 ± 2 mm lang werden lassen.
3. Durch Drehen im Uhrzeigersinn (↻) den Knopf festziehen.
4. Überprüfen, ob das Kabel richtig sitzt.

Branchements aux bornes de haut-parleurs
1. Desserrer le bouton en le tournant dans le sens contraire des aiguilles d'une montre (↺).
2. Introduire le cordon de façon qu'il s'enroule comme indiqué sur le schéma. Dénuder 10 ± 2 mm de fil du cordon.
3. Resserrer le bouton en le tournant dans le sens des aiguilles d'une montre (↻).
4. Vérifier que le cordon est solidement fixé.

Aansluiting op de luidsprekeraansluitingen
1. Draai het knopje los door dit linksom (↺) te draaien.
2. Steek de ader in de opening zodat deze zit rondgedraaid zoals aangegeven in de figuur. Strip ongeveer 8–12 mm van de isolatie.
3. Draai het knopje vast door dit rechtsom (↻) te draaien.
4. Trek zachtjes aan het snoer om te kontroleren of dit stevig vastzit.

Any hum caused when the control amplifier is installed near this model can be reduced by unplugging the power plug of the power amplifier and/or control amplifier, turning it upside down and plugging it in again.

Falls dieses Gerät in der Nähe des Steuerverstärkers aufgestellt wird und Brummgeräusch zu hören ist, den Netzstecker von Leistungsverstärker und/oder Steuerverstärker herausziehen und in umgedrehter Stellung wieder einstecken. Dadurch wird im allgemeinen das Brummen reduziert.

On peut réduire un ronflement quelconque apparaissant quand l'amplificateur de commande est placé près de ce modèle, en débranchant la prise d'alimentation secteur de l'amplificateur de puissance et/ou de l'amplificateur de commande, puis en le retournant complètement une fois et en le rebranchant.

In het geval de stuurversterker dicht bij dit apparaat staat en er treedt brom op, verdient het aanbeveling de stekker van het netsnoer van de eindversterker en/of de stuurversterker uit het stopkontakt te trekken, 180° te draaien en vervolgens opnieuw en het stopkontakt te steken. Hierdoor zal de brom over het algemeen verminderen.

Speaker connections

It is possible to connect two sets of speakers (A, B) to this amplifier and to produce different sound effects by selecting them.

* If you intend to use two sets of speakers simultaneously, use models with an impedance of 8 to 16 ohms. (Both the A and B SPEAKERS switches are set to ON.)
* Connect speakers with an impedance of 4 to 16 ohms when only one set is to be used.
* When using the model as a BTL-connected monophonic amplifier, connect only one 8 to 16 ohms speaker to the designated BTL terminal.
* Connect the left-hand speaker to the L speaker terminals and the right-hand speaker to the R speaker terminals.
* The speaker terminals have + (red) and − (black) polarities and this applies to the speaker systems too. Make sure that the polarities are aligned properly. With a BTL connection, the + and − speaker terminals are red. The + and − polarities are marked and so connect carefully. If the polarities are not aligned properly, the positionality of the instruments will not be clear and the bass may not be heard properly.
* After connecting the speakers, check that the speakers have been connected properly. Improper connection can result in a breakdown.
* Bear in mind the maximum handling power of the speakers when using them continuously under high output power conditions. See that the volume control is not set too high with speakers having a maximum power handling capacity of under 80 watts. Set this control at a position which does not make the sound distorted even with speakers having a 80-watt capacity or more.

Lautsprecheranschlüsse

An diesen Verstärker können zwei Paar Lautsprecherboxen (A, B) angeschlossen werden, so daß es möglich ist, durch entsprechendes Umschalten verschiedene Klangeffekte zu erzielen.

* Bei gleichzeitiger Verwendung von zwei Paar Lautsprecherboxen müssen diese eine Impedanz von 8 bis 16 Ohm haben. (Die beiden Lautsprecherschalter A und B sind dabei auf ON einzustellen.)
* Wird nur ein Paar Lautsprecherboxen angeschlossen, sollte deren Impedanz 4 bis 16 Ohm betragen.
* Bei Verwendung dieses Gerätes als BTL-angeschlossener Mono-Verstärker nur eine Lautsprecherbox mit 8 bis 16 Ohm an die dafür vorgesehene BTL-Klemme anschließen.
* Die linke Lautsprecherbox an die linken (L) Lautsprecherklemmen und die rechte Lautsprecherbox an die rechten (R) Lautsprecherklemmen anschließen.
* Sowohl die Lautsprecherklemmen als auch die Lautsprecherboxen haben die Polaritäten + (rot) und − (schwarz). Auf polaritätsrichtigen Anschluß achten. Bei einem BTL-Anschluß sind die Lautsprecherklemmen + und − rot. Da die Polaritäten + und − markiert sind, beim Anschließen vorsichtig vorgehen. Wird der Anschluß nicht polaritätsrichtig vorgenommen, sind die Instrumente nicht deutlich geortet, und eine nicht einwandfreie Baßwiedergabe kann die Folge sein.
* Nach dem Anschließen der Lautsprecherboxen sicherstellen, daß diese richtig angeschlossen sind. Durch falsches Anschließen kann eine Betriebsstörung verursacht werden.
* Werden die Lautsprecherboxen bei hoher Ausgangsleistung im Dauerbetrieb eingesetzt, muß deren maximale Belastbarkeit beachtet werden. Bei Verwendung von Lautsprecherboxen mit einer maximalen Belastbarkeit unter 80 Watt darf der Lautstärkeregler nicht zu weit aufgedreht werden. Diesen Regler so einstellen, daß der Klang selbst bei Verwendung von Lautsprecherboxen mit einer Belastbarkeit von 80 Watt oder mehr nicht verzerrt wird.

Branchements des haut-parleurs

Il est possible de relier deux jeux de haut-parleurs (A, B) à cet amplificateur et de produire différents effets sonores en les sélectionnant.

* Si l'on a l'intention d'utiliser deux jeux de haut-parleurs simultanément, utiliser des modèles d'une impédance de 8 ou 16 ohms. (Les deux interrupteurs de haut-parleurs A et B sont sur ON).
* Relier des haut-parleurs d'une impédance de 4 à 16 ohms lorsque l'on n'utilise qu'un seul jeu de haut-parleurs.
* Lorsque l'on utilise l'appareil comme un amplificateur monophonique relié au BTL, ne relier qu'un seul haut-parleur de 8 à 16 ohms à la borne marquée BTL.
* Relier le haut-parleur de gauche aux bornes de haut-parleur L, et celui de droite à celles marquées R.
* Les bornes de haut-parleur sont dotées de polarités + (rouges) et − (noires), et ceci s'applique également aux systèmes de haut-parleurs. Vérifier que les polarités sont correctement alignées. Avec un branchement BTL, les bornes + et − de haut-parleurs sont rouges. Les polarités + et − sont indiquées. Donc, effectuer les branchements en s'y reportant. Si les polarités ne sont pas alignées correctement, la position des instruments ne sera pas claire et les graves ne parviendront pas correctement.
* Après avoir branché les haut-parleurs, vérifier qu'ils sont branchés correctement. Des branchements incorrects entraîneront un mauvais fonctionnement.
* Garder présente à l'esprit la puissance maximale de manipulation des haut-parleurs lorsqu'on les utilise continuellement dans des conditions de puissance de sortie élevée. S'assurer que la commande de volume n'est pas réglée trop haut avec des haut-parleurs dont la capacité maximale de manipulation de puissance est inférieure à 80 watts. Mettre cette commande à une position qui ne distorde pas le son même si les haut-parleurs ont une capacité de 80 watts ou plus.

Luidsprekeraansluitingen

Sluit twee luidsprekeEsystemen (A, B) aan op deze versterker voor het kreëren van geluidseffekten door van het ene systeem op het andee luidsprekersystemen (A, B) aan op deze versterker voor het kreëren van geluidseffekten door van het ene systeem op het andere over te schakelen.

* Zorg er voor luidsprekers te gebruiken met een impedantie van 8 tot 16 Ohm als u het geluid gelijktijdig via twee luidsprekersystemen wilt weergeven. (Zowel luidsprekerschakelaar A als B staan op "ON".)
* Gebruik luidsprekers met een impedantie van 4 tot 16 Ohm als u het geluid slechts via één luidsprekersysteem wilt weergeven.
* Bij gebruik van dit model als een BTL mono-versterker dient slechts één luidspreker met een impedantie van 8 tot 16 Ohm te worden aangesloten op de hiervoor bestemde BTL-aansluiting.
* Sluit de linker luidspreker aan op de linker luidsprekeraansluitingen (L) en de rechter op de rechter luidsprekeraansluitingen (R).
* De polariteiten van de luidsprekeraansluitingen en luidsprekersnoeren zijn als volgt: rood is (+) en zwart is (−). Let er goed op dat de polariteiten van de luidsprekersnoeren korresponderen met de polariteiten van de luidsprekeraansluitingen. Bij een BTL-aansluiting is zowel de (+) als de (−) luidsprekeraansluiting rood.
  Als de polariteiten van de luidsprekersnoeren en luidsprekeraansluitingen niet korresponderen zullen de lage tonen zwak weergegeven worden en komt het geluid van de verschillende instrumenten niet uit de juiste richting.
* Kontroleer na het aansluiten van de luidsprekers of de snoeren op de juiste wijze zijn aangesloten. Een verkeerde aansluiting kan resulteren in storing.
* Zorg er voor luidsprekers te gebruiken die het uitgestuurde vermogen van de eindversterker kunnen verwerken als dit zeer groot is gedurende langere tijd. Stel het volume niet te hoog in bij gebruik van luidsprekers met een maximale belastbaarheid van minder dan 80 Watt. Stel het volume zodanig in dat het geluid niet vervormd klinkt, ook bij luidsprekers met een belastbaarheid van 80 Watt of meer.

SPECIFICATIONS

* Measured pursuant to the Federal Trade Commission's Trade Regulation Rule on Power Output Claims for Amplifiers.

Specifications and designs may be changed without notice for improvement.

Power output (Both channels driven)	75 watts* per channel, min. RMS, at 8 ohms from 20 Hz to 20 kHz, with no more than 0.005% total harmonic distortion.
	80 W/ch + 80 W/ch (8 ohms, 1 kHz, T.H.D. 0.005%)
	80 W/ch + 80 W/ch (4 ohms, 1 kHz, T.H.D. 0.005%)
	150 W (8 ohms, 1 kHz, T.H.D. 0.005%, BTL connection)
Power bandwidth	5 Hz – 100 kHz (8 ohms, T.H.D. 0.05% 1/2 Rated)
Frequency characteristics	0.5 Hz – 100 kHz (+0, –1 dB)
Harmonic distortion (8 ohms) (at rated output)	Less than 0.005%
Intermodulation distortion (8 ohms)	
(at rated output)	Less than 0.008%
(at 1/2 rated output)	Less than 0.005%
Input sensitivity/Impedance	1 V/47 k-ohms
Signal-to-noise ratio (IHF, A network, short circuited)	118 dB
Damping factor (8 ohms)	100 (1 kHz)
	60 (20 Hz – 20 kHz)
Power supply	AC 120 V/60 Hz, ~ 220 V 50/60 Hz, ~ 240 V 50/60 Hz, 120 V/220 V/240 V ~ 50/60 Hz
Power consumption	420 W or 540 VA (at 1/3 rated output)
	620 W (at rated output)
Dimensions	435 (W) x 165 (H) x 320 (D) mm
Weight	14 kg

TECHNISCHE DATEN

Änderungen der Konstruktion und technischen Daten bleiben im Sinne der ständigen Verbesserung vorbehalten.

Ausgangsleistung	80 W/Kanal + 80 W/Kanal (8 Ohm, 1 kHz, 0,005% Gesamtklirrfaktor)
	80 W/Kanal + 80 W/Kanal (4 Ohm, 1 kHz, 0,005% Gesamtklirrfaktor)
	150 W (8 Ohm, 1 kHz, 0,05% Gesamtklirrfaktor, BTL-Anschluß)
Leistungsbandbreite	5 Hz – 100 kHz (8 Ohm, 0,05% Gesamtklirrfaktor, 1/2 Nennleistung)
Frequenzgang	0,5 Hz – 100 kHz (+0, –1 dB)
Klirrfaktor (8 Ohm) (bei Nennleistung)	Weniger als 0,005%
Intermodulationsfaktor (8 Ohm) (bei Nennleistung)	Weniger als 0,008%
(bei 1/2 Nennleistung)	Weniger als 0,005%
Eingangsempfindlichkeit/-impedanz	1 V/47 Kiloohm
Rauschabstand (IHF, A-Netzwerk, kurzgeschlossen)	118 dB
Dämpfungsfaktor (8 Ohm)	100 (1 kHz), 60 (20 Hz – 20 kHz)
Stromversorgung	Netzstrom 120 V, 60 Hz; 220 V, 50/60 Hz; 240 V, 50/60 Hz; 120/220/240 V, 50/60 Hz
Leistungsaufnahme	420 W oder 540 VA (bei 1/3 Nennleistung), 620 W (bei Nennleistung)
Abmessungen	435 (B) x 165 (H) x 320 (T) mm
Gewicht	14 kg

CARACTÉRISTIQUES TECHNIQUES

Les caractéristiques techniques et la présentation peuvent être modifiées sans préavis pour des raisons d'amélioration.

Sortie de puissance	80 W/can. + 80 W/can. (8 ohms, 1 kHz DHT 0,005%)
	80 W/can. + 80 W/can. (4 ohms, 1 kHz DHT 0,005%)
	150 W (8 ohms, 1 kHz, DHT 0,005%, branchement BTL)
Puissance de la bande passante	5 Hz – 100 kHz (8 ohms, DHT nominale 0,05% semi-nominale)
Caractéristiques de fréquences	0,5 Hz – 100 kHz (+0, –1 dB)
Distorsion harmonique (8 ohms)	
(à sortie nominale)	Inférieure à 0,005%
Distorsion d'intermodulation (8 ohms)	
(à sortie nominale)	Inférieure à 0,08%
(à sortie semi-nominale)	Inférieure à 0,005%
Impédance/sensibilité d'entrée	1 V/47 kohms
Rapport signal/bruit	
(IHF, réseau A, court-circuité)	118 dB
Facteur d'amortissement (8 ohms)	100 (1 kHz)
	60 (20 Hz – 20 kHz)
Alimentation	CA 120 V/60 Hz, 220 V – 50/60 Hz, 240 V – 50/60 Hz, 120 V/220 V/240 V – 50/60 Hz
Consommation de puissance	420 W ou 450 W (à 1/3 de la sortie nominale), 620 W (à la sortie nominale)
Dimensions	435 (L) x 165 (H) x 320 (P) mm
Poids	14 kg